



**DOUGLAS COUNTY**  
**TRANSPORTATION AND LAND SERVICES**  
**BUILDING SERVICES DIVISION**  
**REFERENCE SHEET (509) 884-7173**

DATE: \_\_\_\_\_

TO: \_\_\_\_\_

RE: \_\_\_\_\_

**Please note the following International Residential Code Regulations:**

(Note: This reference sheet is limited to basic residential code sections and is provided as quick reference guide. It is not a complete list of all IRC regulations. Please consult the International Residential Code or the TLS staff if you have any questions regarding codes or construction at the number listed above).

***ITEMS FROM THE FOLLOWING LIST MAY BE NOTED ON YOUR BUILDING PLANS. NOTE: ( " ) defined as one inch and ( ' ) defined as one foot***

**1. FOOTINGS: SECTION R403 I.R.C.**

- a . 24" minimum, from grade to bottom of footing.
- b . Undisturbed earth (no spanning fill).
- c . Proper width and thickness.
- d . Rebar wired in place and lapped 15" minimum.
- e . R1001.1.1 – Fireplace footings 12" deep minimum and at least 6" beyond each side.

**2. FOUNDATION: TABLE R404.1.1 (1)**

- a . Proper thickness.
- b . Windows roughed in at proper size and sill height (for egress).
- c . Pipes sleeved.
- d . R403.1.6 – Foundation bolts: 7" minimum concrete embedment (10" J bolt typical). Spaced maximum of 6' O.C., within 1' of plate ends. Minimum of 2 bolts per piece.
- e . R403.1.6 – Sill plate pressure treated, redwood, or cedar.
- f . R408.3 – Crawl space access through foundation minimum 16"x24".
- g . R408.1 – For under-floor crawl space ventilation, minimum net area of ventilation openings should be evenly space and provided for cross ventilation and one vent shall be located within 3 feet of each corner. (WSVIAQC, Section 502.1.2). More than 1 to 300 sq. ft. and/or use of operable vents require a radon vent per VIAQC Sec.503.2.6 and 503.2.7

### **3. FLOORS:**

- a . R502.1 – Identification: Load-bearing dimension lumber for joists beams and girders shall be identified by a grade mark.
- b . R502.8 – Drilling and Notching of Sawn Lumber – Notches in joists, rafters and beams: not to exceed 1/6 of depth of the member, not be longer than one-third of the depth of the member and not in middle third of span. Notches at end not to exceed ¼ depth of the member. Holes bored or cut into members shall not exceed one-third the depth of the member.
- c . R502.6 – Joists framed from opposite sides, lapped 3” and nailed together with three (3) 10d face nails. A wood or metal splice with strength equal to or greater than that provided by the nail lap is permitted.
- d . Follow manufactures requirements for engineered wood product (BCI, TJI, etc.) installation and hole location and sizing.
- e . R502.6 – Bearing – Joists, beams or girders shall have not less than 11/2 inches of bearing on wood or metal and not less than 3 inches on masonry or concrete.
- f . R319 – Post/piers separated from concrete or treated.
- g . R502.9 – Post/ girder connections gusseted.
- h . R502.3 – Spans for floor joists shall be in accordance with Tables R502.3.1 (2).
- i . R503.1 – Maximum spans for lumber used, as floor-sheathing sub-floor shall conform to Tables R503.1, and R503.2.1 (2). Sub-floor proper size and type.
- j . R503.2.1 – Identification and grade. – All lumber grade stamped.
- k . R502.7 – Lateral restraint at supports. Joists shall be supported laterally at the ends by full depth solid blocking not less than 2 inches nominal in thickness.
- l . R503.1.1 – End joints in sub-flooring shall occur over supports unless end matched lumber is used in which case each piece shall bear on at least two joists.
- m . R502.7.1 – Bridging: Joist exceeding 2 inches by 12 inches to be supported laterally by solid blocking, diagonal bridging, or a continuous 1 inch by 3 inch strip nailed across the bottom of joists perpendicular to joists not exceeding 8 ft. on center.
- n . R502.12 – Draft stopping required: When usable space above and below concealed space of a floor/ceiling assembly occurs, draft stops shall be installed so that area of concealed space does not exceed 1,000 square feet.
- o . R502.13 – Fire blocking required: Fire blocking shall be provided in wood-frame construction in the following locations. At concealed spaces of stud walls, vertically at ceiling and floor levels and horizontally at intervals not exceeding 10 feet. At all spaces such as occur at soffits, and drop ceilings. Spaces between stair stringers at the top and bottom of the run. At openings around vents, pipes, and ducts at ceiling and floor levels. At chimneys and fireplaces. At two-family dwelling unit separation.

- p . R311.2.2 – Under stair protection. Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with ½ inch gypsum wallboard.
- q . R408.3 – Crawl space access through floor shall be a minimum 18 inches by 24 inches.

#### **4. WALLS:**

- a. Bracing per R602.10.3 (typically 4x8 wood structural panel within 12 feet of each corner of house).
- b. R602.7 – Headers supported by minimum of 1 ½” bearing (see exceptions for headers in non-bearing walls).
- c. R602.6 – Drilling and notching in bearing walls: studs notched not over 25% of width, and any stud (bearing and non-bearing) may be drilled, provided the diameter of the resulting hole is no greater than 40% of the stud width, the edge of the hole is no closer than 5/8 inch to the edge of stud, and the hole is not located in the same section as a notch.
- d. 602.6 – Non-bearing walls: studs notched not over 40% of width.
- e. R602.6.1 – Wall plates cut or drilled for plumbing or ductwork by more than 50% of its width, must be fastened with not less than .054” (18 gauge) thick and 1-1/2” wide metal strap, with 8-16d nails.
- f. R602.8 – Fire blocking: Wall/ceiling line of concealed soffit spaces and concealed spaces of stud walls not to exceed 10’ horizontally and vertically at the ceiling and floor levels.
- g. R502.12 – Draft-stopping: Properly installed (usable space both above and below the concealed space of a floor/ceiling assembly such as area above suspended ceiling, not to exceed 1,000 sq. ft.).
- h. R703 – Exterior wall covering: water-resistive barrier (weather-resistant sheathing paper) behind exterior veneer is required. Flashing around door and window openings is required. See Table R703.4.

#### **5. ROOFS:**

- a . R802.10 – Trusses stamped and designed for project. Snow/live load 35 pounds per sq. ft. minimum, and increases at higher locations depending on elevation.
- b . R802.10.3 – Bracing: Trusses shall be braced to prevent rotation and provide lateral stability.
- c . R802.10.4 – Alterations to trusses: Truss members shall not be cut, notched, drilled, spliced or otherwise altered in any way without the approval from an engineer.
- d . R802.5 – Rafters proper size.
- e . R802.3 – Hip or valley rafters, 2” nominal thickness and not less than depth of rafters.
- f . R802.3 – Rafters nailed to ceiling joists (if parallel). Table R602.3 (1) and R802.5.1 (9).
- g . R802.3.1 – Where ceiling joists are not parallel to rafters, metal straps attached to the ends of the rafters shall be installed in a manner to provide

a continuous tie across the building. Rafter ties, 4" on center maximum if rafters/joists not parallel.

- h. R802.8 and R802.8.1 – Rafters and ceiling joists blocked each end (trusses blocked at plate line).
- i. R503.2.1.1 (1) b – Plywood sheathing: covers two or more spans and gapped per manufactures requirements.

**6. ROOFING:**

- a. Asphalt shingles: 2:12 minimum slope, slopes 2:12 to 4:12 require double underlayment per R905.2.7.
- b. Metal: If under 3:12, needs sealer strips at laps. R905.10.2.
- c. Tile, wood shakes/shingles: Installed per requirements in IRC Ch 9.
- d. Wood shakes shall be graded "number one", display mill name/phone number, quality control number, and dimensions. Table R905.8.5.
- e. Ice dam protection required at eaves, Table R301.2 (1).

**7. ATTIC ACCESS:**

R807.1 – For attics exceeding 30 square feet and vertical height of 30 inches and greater. Minimum 22" x 30" opening and 30" headroom above.

**8. ATTIC VENTILATION:**

R806.2 – 1/150 of ventilated space or 1/300 if ½ at eaves and ½ at least 3' above eaves. A minimum of 1-inch space shall be provided (baffles) between the insulation and the sheathing at the location of the vent.

**9. SMOKE ALARMS:**

R313 – Required in the following locations: each sleeping room; outside each sleeping area in the immediate vicinity of bedrooms; each story of the dwelling, including basements. When more than one smoke alarm is required the alarms shall be interconnected and actuation of one alarm will activate all alarms.

**10. GARAGE SEPARATION WALL:**

- a. R309.1 – Openings from a private garage into a room used for a sleeping room is not permitted. Other openings between the garage and residence shall have a solid wood door 1 3/8 inches in thickness, or 20-minute fire rated door.
- b. R309.1.1 – Duct penetrations. Duct penetrating the garage wall or ceiling separating the dwelling shall be a minimum No. 26 gage sheet steel and shall have no openings into the garage.
- c. R309.2 – Wall and ceiling separation. Garage shall be separated by not less than ½ -inch gypsum wallboard (GWB) on garage side. Garages beneath habitable rooms above shall be separated at ceiling by 5/8-inch

type-X gypsum wallboard. Walls supporting habitable room above garage must be protected with ½-inch GWB.

**11. GYPSUM WALL BOARD:**

- a. Table R702.3.5 – Nails: 7” OC Horizontal, 8” OC Vertical. Screws: 12” Horizontal, 16” Vertical.
- b. R702.4.3 – Water-resistant gypsum board not approved on ceiling above the shower or over vapor barrier.

**12. EXHAUST FANS:**

Washington State VIAQC 302.2.1 – Required in each bathroom, water closet compartment, laundry room and kitchen. Point of discharge of exhaust air shall be at least 3” from any opening into building and shall exit through approved terminal end opening.

**13. EMERGENCY ESCAPE:**

R310.1 – Required in all sleeping areas, lofts and basements with operable door or window directly to outside (5.7 square foot minimum net clear openable area, 24” minimum net clear height, 20” minimum net clear width, 44” maximum finished sill height).

**14. TEMPERED GLASS:**

R308.4 – Required in hazardous locations. Typically in doors or within 24” arc of doors, or within 18” of floor or adjacent to tub/shower enclosure.

**15. FIREPLACE:**

- a. R1002.1 – Factory-built fireplaces and chimneys; shall be listed and labeled and installed in accordance with manufacturer’s installation instructions, including hearth extensions and chimney termination.
- b. R1003.1 – Masonry fireplaces; concrete footing 12-inches thick and 6-inches beyond edge of fireplace. Bottom of footing located below frost depth. Vertical and horizontal reinforcement required including metal straps attached to ceiling joist or upper floor. Fireplace clearances: wood beams, joists, studs and other combustible material shall have a clearance of not less than 2-inches.
- c. R1001.6 Termination – Chimney shall extend at least 2-feet higher than any portion of a building within 10-feet, but shall not be less than 3-feet above the highest point where the chimney passes through the roof.
- d. R1003.9 Hearth and hearth extension: Concrete hearth minimum 4-inches thick, extension minimum 2-inches thick. No combustible form to remain on the underside of hearths after construction. Hearth shall extend 16-inches in front and 8-inches beyond each side of fireplace opening.

Fireplace opening 6 square feet or larger, hearth must extend 20-inches in front and 12-inches on sides.

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- e. VIAQC 402.3 – Outside combustion air required (6 square inch minimum).
- f. VIAQC 402.3 – Tight fitting doors required.

**16. STAIRS:**

***Changes to approved stairway design require prior approval.***

- a. R311.5 – Stairs: 7 3/4” maximum rise, 10” minimum run, 36” minimum width. The greatest dimension may not exceed the smallest by 3/8”. Maximum and minimum dimensions may not be exceeded.
- b. R311.5.3.3 – Nosing not less than 3/4-inch but not more than 1 1/4 inch shall be provided on stairways with solid risers. Exception: nosing not required where the tread depth is a minimum of 11-inches.
- c. R311.5.6 – Graspable **handrail** required on interior and exterior stairs with four or more risers (height 34-38 inches measured from nose of tread to top of handrail; handrail size: 1 1/4” to 2” in cross section; minimum 1 1/2” from wall with ends returned to wall or newel post; continuous full length of stairs).
- d. R311.5.2 – Minimum headroom height in stairways 6’8”. Measured from nose of tread to finished ceiling.
- e. R311.5.4 - Landings: There shall be a floor or a minimum 36-inch landing measured in the direction of travel at the top and bottom of each stairway or stair-run (exception: landing not required at top of an interior flight of stairs, provided a door does not swing over the stairs). When changing direction in a stair-run, diagonal landings are not permitted.
- f. R311.5.7 – Illumination: All stairs (including exterior stairs) shall be provided with illumination in accordance with Section R303.6.

**17. LANDING AND REQUIRED EXIT DOORS:**

- a. R311.4 Doors – Not less than one *required* exit door side-hinged, 3-feet in width and 6-feet 8-inches shall be provided. The *required* exit door shall provide for direct access from the habitable portions of the dwelling to the exterior without requiring travel through the garage.
- b. R311.4.3 – Landing required on each side of each exterior door. Exception 1: Where a stairway of two or fewer risers located on the exterior side of a door other than the *required* exit door, a landing is not required for the exterior side of the door. The floor or landing at the *required* exit door shall not be more than 11/2-inches lower than the top of the threshold.  
Exception 2: The landing at exit doors, including the required exit door, shall have a rise no greater than 7 3/4-inches below the top of the threshold, *provided the door other than screen door does not swing over the landing*. Landing width: At least the width of the door, minimum dimension of 36-inches in length and width.

**18. GUARDS:**

- a. R312.1 – **Guardrails** required on all decks, porches, balconies and open landings that are 30” or more above finish grade (ground level). Minimum height 36”, guardrail spacing of internal rails 4” maximum.
- b. International Mechanical Code, and IFGC, Sec. 303.4 Protection from damage. - Vehicle barriers required in front of appliances in garage if in line with a vehicle.

**19. INSULATION:**

- a. Washington State Energy Code Minimum prescriptive requirements for low-rise residential: See current energy code specifications. *Basic Building Envelope Compliance Path:* Roof/attic R-38; Joist vaults R-30; Walls R-21; Floor R-30; Slabs R-10; Windows U-value .35. Water service pipe in unconditioned area R-3.
- b. R808 – Combustible insulation shall be separated a minimum of 3-inches from recessed lighting fixtures, fan motors and other heat producing devices unless device is listed for lesser clearances.

**20. PLUMBING:**

Lead free solder required.

- a. Pressure test on Potable water system, DWV (drainage, waste and vent) system, and gas line required.
- b. Proper drainpipe size, slope, fittings, vents, cleanouts provided.
- c. Hot water tank pressure relief valve drained to outside of building or to floor drain (provide one inch minimum air gap) using hard drawn copper, galvanized steel or cpvc piping.
- d. R-10 insulating pad required under water heater when located on concrete or in an unconditioned space shall be insulated to a minimum R-3.
- e. Sources of ignition must be kept at least 18” above floor line (typically all water heaters in garages).
- f. Provide permanent one-inch air gap for water softener discharge at drain or standpipe.

If you have any questions please call (509) 884-7173

**NOTE: THIS LIST WAS COMPILED AS AN AID ONLY FOR SINGLE FAMILY RESIDENTIAL CONSTRUCTION. CONSULT THE IRC AND DOUGLAS COUNTY LAND SERVICES STAFF FOR DETAILED CODE REQUIREMENTS.**